

Draft Outline for OU1 Site Operations and Maintenance Plan

Contents

Section 1 Introduction

1.1	Site Background.....	1-
1.1.1	Former Export Plant (Area 1).....	1-
1.1.2	Riverside Park (Area 2).....	1-
1.1.3	Embankments (Area 3).....	1-
1.2	Statement of Basis and Purpose	1-
1.2.1	O&M Objectives	1-
1.2.2	Summary of Long-Term O&M Activities.....	1-
1.2.3	Summary of Five-Year Review Activities	1-
1.3	Overview of Transition from Remedial Action (RA) to Operation and Maintenance (O&M).....	1-
1.3.1	EPA/State Joint Inspection.....	1-
1.3.2	Operational and Functional (O&F) Period	1-
1.3.3	Criteria for Determination of O&F	1-
1.3.4	State Assumption of O&M Responsibilities and Funding..	1-
1.3.5	Schedule for Transition from RA to O&M	1-
1.3.6	Access	1-

Section 2 Routine Site Inspection

2.1	Routine Site Inspection Objectives	2-
2.2	Observe Site Conditions.....	2-
2.2.1	Inspect the Integrity of Covers.....	2-
2.2.2	Inspect the Integrity of Engineered Controls.....	2-
2.2.3	Other Site Features.....	2-
2.3	Cover Maintenance Activities	2-
2.3.1	Repair of Minor Breaches in Protective Covers.....	2-
2.3.2	Repair of Major Breaches in Protective Covers	2-
2.3.3	Repair of Breaches to Protective Covers Due to Underground Utility Modifications/Repairs	2-
2.4	Future Encounters with Contaminated Soil.....	2-

Section 3 Monitor Institutional Controls

3.1	Proprietary Controls	3-
3.1.1	Establish Proprietary Controls.....	3-
3.1.2	Evaluate and Update Proprietary Controls	3-
3.2	Governmental Controls.....	3-
3.2.1	Establish Governmental Controls.....	3-
3.2.2	Evaluate and Update Governmental Controls	3-
3.3	Enforcement and Permit Tools.....	3-
3.4	Informational Devices	3-

3.4.1	Establish Informational Devices	3-
3.4.2	Evaluate and Update Informational Devices	3-

Section 4 Reporting Requirements

4.1	Routine Reports	4-
4.2	Special Reports	4-

Section 5 Cost Estimate

5.1	Purpose and Intended Uses	4-
5.2	Methodology and Organization	4-
5.3	Cost Estimates Accuracy and Cost Uncertainty	5-
5.4	O&M Cost Estimate	5-

Section 6 References

Appendices

<i>Appendix A</i>	Detailed O&M Cost Estimate
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Figures

1-2	Libby Site Operable Units (OUs)
1-2	OU1 Site Layout
1-3	Location and Depth of Residual Contamination at OU1
1-4	Location of Protective Covers and Remedy Components at OU1

Tables

1-1	Summary of the Major Events for Transition from Remedial Action (RA) to O&M
5-1	Summary of Probable O&M Cost Incurred by MDEQ
5-2	Summary of Probable O&M Cost Incurred by EPA

Acronyms

ARD	Assessment and Remediation Division
bgs	belowground surface
CDM	CDM Federal Programs Corporation.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
COC	Contaminant of Concern
EPA	Environmental Protection Agency
Grace	W.R. Grace
IC	Institutional Control
ICIAP	Institutional Control Implementation and Assurance Plan
KDC	Kootenai Development Corporation
L	liter
LA	Libby Asbestos
MDEQ	Montana Department of Environmental Quality
MDT	Montana Department of Transportation
NCP	National Contingency Plan
O&F	Operational and Functional
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
OU1 site	Libby Asbestos Superfund Site Operable Unit 2
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
ROW	right-of-way
RPM	remedial project manager
SSC	State Superfund Contract
Subarea 1	Screening Plant
Subarea 2	Flyway Property
Subarea 3	Privately-Owned Property
Subarea 4	Rainy Creek Road Frontages
USACE	U.S. Army Corps of Engineers

Section 1

Introduction

This Operations and Maintenance (O&M) Plan presents the administrative, financial, and technical details and requirements for inspecting, operating, and maintaining the Operable Unit 1 (OU1) Remedial Action (RA) at the Libby Asbestos Superfund Site (Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS] # MT0009083840) in accordance with guidance developed by EPA for Operation and Maintenance in the Superfund Program (Environmental Protection Agency [EPA] 2001a).

1.1 Site Background

The Libby Asbestos Superfund Site is located in and around the City of Libby, Montana. Libby is the county seat of Lincoln County and is in the northwest corner of Montana, about 35 miles east of Idaho and 65 miles south of Canada.

Numerous hard rock mines have operated in the City of Libby area since the 1880s, but the dominant impact to human health and the environment in the City of Libby has been from vermiculite mining and processing. The vermiculite deposit that was mined by W.R. Grace Company (Grace) contains a distinct form of naturally-occurring amphibole asbestos, Libby asbestos (LA), and is considered the contaminant of concern (COC) at the Libby Asbestos Superfund Site. EPA initiated an emergency response action in November 1999 to address questions and concerns raised by citizens of the City of Libby regarding possible ongoing exposures to asbestos fibers as a result of historical mining, processing, and exportation of asbestos-containing vermiculite. To facilitate a multi-phase approach to remediation of the Libby Asbestos Superfund Site, eight separate OUs were established. These OUs are shown on Figure 1-1 and are described below:

- **OU1.** Libby Asbestos Superfund Site OU1 (OU1 site) is the subject of this O&M plan. The former Export Plant is situated just north of the downtown area of the City of Libby, Montana. The property is bounded by the Kootenai River on the north, Highway 37 on the east, the Burlington Northern Santa Fe (BNSF) railroad thoroughfare on the south, and State of Montana property on the west. OU1 includes the embankments of Highway 37 (Area 1), the former Export Plant (Area 2), and Riverside Park. The Highway 37 right-of-way adjacent to the OU1 site was included due to the proximity to the OU1 site and the known contamination in the ROW.
- **OU2.** OU2 includes areas impacted by contamination released from the former Screening Plant. The Highway 37 right-of-way adjacent to the OU2 site was included due to the proximity to the OU2 site and the known contamination in the ROW. For the purposes of this report, the contaminated portion of the Highway 37 right-of-way is considered part of Subareas 1, 2 and 3 within the OU2 site.

- **OU3.** The mine OU includes the former vermiculite mine and the geographic area (including ponds) surrounding the former vermiculite mine that has been impacted by releases from the mine, including Rainy Creek and the Kootenai River. Rainy Creek Road is also included in OU3. The geographic area of OU3 is based primarily upon the extent of contamination associated with releases from the former vermiculite mine.
- **OU4.** OU4 is defined as residential, commercial, industrial (not associated with former Grace operations), and public properties, including schools and parks in and around the City of Libby, or those that have received material from the mine not associated with Grace operations. OU4 includes only those properties not included in other OUs.
- **OU5.** OU5 includes all properties that were part of the former Stimson Lumber Mill and that are now owned and managed by the Kootenai Business Park Industrial Authority.
- **OU6.** The rail yard owned and operated by BNSF is defined geographically by the BNSF property boundaries and extent of contamination associated with BNSF rail operations. Railroad transportation corridors are also included in this OU and have not been geographically defined.
- **OU7.** The Troy OU includes all residential, commercial, and public properties in and around the Town of Troy, approximately 20 miles west of downtown Libby.
- **OU8.** OU8 is comprised of the US and Montana State Highways and secondary highways that lie within the boundaries of OU4 and OU7.

This O&M Plan was prepared for the OU1 site of the Libby Asbestos Site (known as the former Export Plant Site).

The following subsections summarize removal activities within each area of the OU1 site. Details of investigation and removal activities in the OU1 Areas will be provided in the RA Report.

1.1.1 Former Export Plant (Area 1)

Area 1 description and details of investigation and removal activities to be added

1.1.2 Riverside Park (Area 2)

Area 2 description and details of investigation and removal activities to be added

1.1.3 Embankments (Area 3)

Area 3 description and details of investigation and removal activities to be added

1.2 Statement of Basis and Purpose

The purpose of this O&M Plan is to present the activities necessary for inspecting, operating, and maintaining the effectiveness of OU1 RA including administrative, financial, and technical details and requirements.

1.2.1 O&M Objectives

In order to ensure that the protection of human health is maintained, remediation goals are defined; however, remediation goals for LA have not been established in the ROD due to the lack of LA-specific cancer toxicity values and due to the high variability in the relationship between asbestos in soil and asbestos in air (EPA 2010b). Therefore, implementation and maintenance of the remedial measures should meet the remedial action objectives (RAOs):

- Break the exposure pathways for inhalation of LA fibers that would result in unacceptable cancer risk or non-cancer hazard.
- Control erosion of contaminated soil by wind and water from source locations to prevent exposures and the spread of contamination to unimpacted locations.
- Implement controls to prevent uses of the OU1 site that could pose unacceptable risks to human health or the environment or compromise the remedy.

The ROD lists OU1 site specific O&M objectives as the following:

- Maintain the integrity of the engineered controls and protective covers.
- Evaluate and update institutional controls (ICs) to ensure protectiveness.
- Ensure that the protection of human health is maintained within the OU1 site.
- Prevent unrestricted use of the OU1 site (EPA 2010b).

Long-term O&M and Five-Year Reviews will be conducted indefinitely throughout the life of the OU1 site because contaminants would remain on the OU1 site at levels that do not allow for unlimited and unrestricted use.

1.2.2 Summary of Long-Term O&M Activities

Long-term O&M will be performed to maintain the integrity of the remedy components, including protective covers and institutional controls. MDEQ is responsible for long-term O&M of the remedy and repairs, as described in Section 1.3.4.

Prior to work on-site, as described in Section 4.2, the MDEQ will develop an O&M HASP or adopt an existing HASP pertaining to the work required. All O&M work will be performed in compliance with the HASP. This plan will include provisions for responding to and reporting accidents involving site personnel, operating

emergencies, and other unusual events such as fires, floods, or weather damage (EPA 2010a).

The following activities will be considered routine O&M activities:

- **Routine OU1 Site Inspections.** Routine non-intrusive visual site inspections will be conducted to ensure integrity of the covers and backfilled areas. OU1 site inspections are assumed to be performed at least annually as well as concurrently with five-year site review. Routine OU1 site inspections are discussed in Section 2.
- **Cover Maintenance.** Damage to protective covers and backfilled areas observed during routine OU1 site inspections will be repaired to eliminate exposure of underlying contamination. Cover maintenance is discussed in Section 2.3, including issues that may arise with the covers during long-term O&M and contingency plans for such occurrences.
- **IC Evaluation and Updates.** ICs will be evaluated on at least an annual basis and updated if necessary to ensure protectiveness. Evaluation and updates for different types of ICs are discussed in Section 3.
- **Reporting.** Routine reports summarizing O&M activities will be prepared by the MDEQ and submitted to the EPA on an annual basis. Routine reporting also involves regular review and updates as necessary to the O&M HASP as described in Section 2.2 and as-built drawings. Reporting requirements are discussed in detail under Section 4.

1.2.3 Summary of Five-Year Review Activities

Five-Year Site Reviews of the OU1 site will be performed since contaminated subsurface soil is left in place below the protective covers and backfilled excavations, preventing unrestricted use of the OU1 site. EPA is responsible for performing and funding the Five-Year Reviews as long as they are required. The Five-Year Review process consists of six components: 1) community involvement and notification, 2) document review, 3) data review and analysis, 4) site inspection, 5) interviews, and 6) protectiveness determination (EPA 2003).

- Community involvement activities will include notifying the community that the Five-Year Review will be conducted, notifying the community that the Five-Year Review has been completed, and providing the results of the review to the local site repository.
- Document review involves a review of all relevant documents and data to obtain information to assess the performance of the response action. Documents for review include, but are not limited to the OU1 ROD (EPA 2010b), final Remedial Investigation Report (EPA 2009a), and the Summary of Outdoor Ambient Air Monitoring for Asbestos at the Libby Asbestos Superfund Site (EPA 2009b).

- Data review and analysis will involve a review of sampling and monitoring plans and results from monitoring activities.
- Site inspections will be conducted to gather information about the site's current status and to visually confirm and document the conditions of the remedy, the site and the surrounding area.
- Interviews may be conducted as necessary with the site manager, site personnel, and people who live or work near the site to gather additional information about the site's status or identify remedy issues.

When determining the protectiveness of the remedy, the Five-Year Review will include a technical assessment to examine the following three questions to provide a framework for organizing and evaluating data and information and ensure that all relevant issues are considered when determining the protectiveness of the remedy:

1. Is the remedy functioning as intended by the decision documents?
2. Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?
3. Has any other information come to light that could call into question the protectiveness of the remedy (EPA 2001a)?

According to the OU1 ROD, the remedial components will be subject to continual re-evaluation as part of the Five Year Review to ensure protectiveness of the remedy into the future. This will include any re-evaluation based on possible improvements to the technology to detect LA in soils and any new information gained from on-going Libby Asbestos Superfund Site Action Plan investigations. The remedy will be re-evaluated in accordance with the review requirements of CERCLA Section 121(c).

As described in Section 4, routine reports summarizing the Five Year Review will be prepared by the EPA in accordance with the *Comprehensive Five-Year Review Guidance* (EPA 2001b).

1.3 Overview of Transition from Remedial Action (RA) to Operation and Maintenance (O&M)

The O&M period is initiated after the remedy has achieved the RAOs and remediation goals, and is determined to be operational and functional (O&F). The following sections describe the process of transitioning from RA to O&M.

1.3.1 EPA/State Joint Inspection

The lead (EPA) and support (MDEQ) agencies should conduct a joint inspection at the conclusion of RA construction, as provided for in the NCP, 40 CFR§300.515(g). A joint inspection allows EPA and the State to determine whether the remedy has been constructed in accordance with the ROD and the RD. The joint inspection may be

conducted independently of, or concurrently with, the construction contract inspection.

The joint inspection also marks the beginning of the one-year O&F period described below. EPA and the State are strongly encouraged to sign a memorandum following the joint inspection to document the date of inspection and the agreement of all parties that the O&F period has commenced. This focus on a written agreement will draw attention to the significance of this determination in terms of establishing a final date for transferring the remedy to the State.

1.3.2 Operational and Functional Period

The O&F determination is the milestone that indicates the remedy is operating as designed. According to EPA guidance *Operation and Maintenance in the Superfund Program* (EPA 2001a), the O&F period starts after the construction is complete and ends when the remedy becomes “operational and functional”.

Through a joint site inspection the EPA and MDEQ will agree that remediation activities were completed in accordance with the selected remedy in the OU1 ROD. At that time, the O&F period (also known as the “shakedown” period) will commence.

1.3.3 Criteria for Determination of O&F

Per the NCP, a remedy becomes “operational and functional” either in one year after the construction is complete, or when the remedy is determined concurrently by EPA and the State to be functioning properly and is performing as designed, whichever is earlier. EPA may also grant extension to the one-year O&F period, as appropriate, to address any deficiencies in the remedy or to make minor adjustments as necessary to ensure the remedy is operating as designed.

To make the determination of “operational and functional” for OU1, the bulleted points of clarification presented in Section 14 of the OU1 ROD need to be addressed or additional documentation needs to be provided which confirms that these items have already been sufficiently addressed or waived by EPA. There is potential that these items (summarized below) may result in further remedial action construction. Thus, following items are regarded as subcriteria for determining whether the remedy put in-place at OU1 meets the criterion for determination of “operational and functional”.

- **Risk Assessment.** As presented in the ROD Section 14, EPA will conduct a quantitative, OU1 post-construction risk assessment, to include ABS, at OU1 following the completion of construction (once toxicity values are available) to confirm effectiveness of the remedy (EPA 2010b). The proposed schedule for this OU1 post-construction risk assessment is for the summer of 2011.
- **New Information.** According to the ROD, once the OU1 post-construction risk assessment is complete, the agencies will re-evaluate the remedy and EPA will take action, as necessary, to ensure that the soil-to-air pathway is broken. Actions may

include additional excavation, improving covers, and/or strengthening institutional controls (ICs) (EPA 2010b).

- **Planned Future Uses.** EPA will work closely with the City of Libby during design so that design can complement any planned future uses (EPA 2010b).
- **Removal of Contamination at Depth in Excavations.** If LA source materials are encountered during excavation activities, removal will continue until the source material is removed (to a maximum of 3 feet). If contamination continues below 3 feet, a visible barrier marking the extent of excavation will be placed before backfilling (EPA 2010b).

1.3.4 State Assumption of O&M Responsibilities and Funding

MDEQ is responsible for O&M of the remedy after determination of O&F, including the funding necessary for O&M. If a failure of the remedy is due to inadequate performance of O&M by MDEQ, then they are responsible for the appropriate corrective action. If the remedy is damaged by some sort of natural disaster including flooding from storm events, then MDEQ will make the necessary repairs. If the area has been declared a disaster under the Stafford Act, Federal disaster funds may be available to MDEQ.

MDEQ can also approach EPA to help in paying some or all of the costs to repair or modify the remedy put in-place. EPA Region 8 in consultation with the Director of the Assessment and Remediation Division, Office of Superfund Remediation and Technology Innovation (OSRTI), and in concurrence with the Assessment and Remediation Division (ARD) of OSRTI and appropriate Branch Chief may consider and determine to use the EPA appropriations or Special Account money to pay/fund the repair or modifications to the remedy in-place (EPA 2007). If EPA proposes to use Fund money, priority funding generally will be given to all remedy repairs or modifications with a total cost of \$250,000 or less; remedy repairs or modifications costing in excess of \$250,000 generally will be subject to National Risk-Based Priority Panel review and approval.

When evaluating whether it is appropriate for the EPA to pay some or all of the costs to repair or modify the remedy after MDEQ has assumed responsibility for O&M, EPA will consider whether:

- A latent design or construction defect in a remedy that affects protectiveness is discovered after the construction has been completed and O&M has begun.
- A new, previously not identified COC is discovered, which necessitates a fundamental change to the remedy chosen in the OU1 ROD.
- An Applicable or Relevant and Appropriate Requirement (ARAR) change requires a more stringent cleanup level than the one established in the OU1 ROD.

EPA is responsible for performing and funding the Five-Year Reviews as long as they are required.

1.3.5 Schedule for Transition from RA to O&M

Table 1-1 presents a summary of the major events for transition from RA to O&M at the OU1 site and associated dates of these events. See Section 1.1 for a summary of all investigation and removal activities that occurred prior to the ROD.

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Table 1-1
Summary of the Major Events for Transition from
Remedial Action to Operations & Maintenance

Date	Event
May 10, 2010	ROD for OU1 Signed
TBD (estimated Summer 2011)	Remedial Design
TBD (estimated Fall 2011)	Mobilization, site preparation & start of excavation
TBD (estimated Fall 2011)	Remedial Excavation Complete
TBD (estimated Fall 2011)	Remedial Restoration Complete
TBD (estimated Fall 2011)	Final Restoration Inspection/Final Demobilization
TBD (estimated Fall 2011)	Joint Site Inspection/Start of O&F Period
TBD (estimated Spring 2012)	OU1 Joint Site Inspection Memorandum
TBD (estimated Spring 2012)	Draft RA Report
TBD	Draft O&M Plan
TBD (estimated Spring 2012)	OU1 Post-Construction Risk Assessment Sampling
TBD (estimated Spring 2012)	IC Implementation and Assurance Plan (ICIAP)
TBD (estimated Summer 2012)	OU1 Post-Construction Risk Assessment Report
TBD (estimated Summer 2012)	O&F Determination/Start of O&M Phase
TBD	Final RA Report
TBD (estimated Spring 2013)	First Annual O&M Site Inspection
TBD (estimated Summer 2013)	First Annual O&M Report
TBD (estimated Fall 2016)	First Five-Year Review

Annual O&M Site Inspections, Annual O&M Reporting, and Five-Year Reviews will be conducted indefinitely unless contaminants no longer remain on site at levels that do not allow for unlimited use and unrestricted exposure.

1.3.6 Access

Access agreements for conducting long-term O&M:

- City of Libby
- David S. Thompson Search and Rescue facility
- MDT (ROW to Highway 37) MDT Encroachment Permits

Access agreements will be required from each property owner or agency located within the OU1 site boundary.

- Can be addressed through ICs (refer Section 3)

Section 2

Routine Site Inspection

Site inspections are conducted to provide information about a site's status and to visually confirm and document the conditions of the remedy, the site, and the surrounding area (EPA 2001a).

2.1 Routine Site Inspection Objectives

In-line with the O&M objectives presented in Section 1.2.1, the objectives of routine OU1 site inspections include the following:

- Observe and maintain the integrity of the engineered controls and protective covers
- Evaluate the implementation of ICs to ensure protectiveness as described in Section 3
- Ensure that the protection of human health is maintained within the site through maintenance of engineered controls and protective covers
- Prevent unrestricted use of the site (EPA 2010b)

2.2 Observe Site Conditions

Monitoring protocol includes routine **intrusive** and non-intrusive visual site inspections to ensure integrity of the covers and engineered controls. Site inspections will be performed annually as well as concurrently with Five Year Site Review according to the proposed O&M schedule presented in Section 1.3.

2.2.1 Inspect the Integrity of Covers

Do we need more intensive inspection (sampling) and/or more frequent inspection at OU1 due to increased traffic from for both workers at the David S. Thompson Search and Rescue facility and workers or visitors at Area 1 and Area 2 of the site?

A non-intrusive (surficial) visual inspection of the immediate ground surface at the site will be conducted during the annual site inspection to determine the presence or absence of asbestos containing material or debris. The types and location of the remedial covers found on the OU1 site are depicted in Figure 1-4. A portion of the site along the Kootenai River in the Area 2 is covered with rip rap as an erosion control measure. The vast majority of the site was restored by backfilling excavations using clean soil brought from an offsite borrow source area outside the City of Libby valley. Above the backfill, topsoil was placed and hydroseeded for erosion control.

Annual inspections will involve observing whether the covers and vegetation are intact and preventing exposure to asbestos containing material. Inspections will be conducted by persons properly trained in accordance with MDEQ Administrative Rules of Montana (ARM) Rule 17.74.301-405 requirements and also don proper PPE when working around LA or contaminated soils according to the HASP, to be

developed by the MDEQ. If asbestos containing material or debris is observed, the cover will be identified for repair as described in Section 2.3.

2.2.2 Inspect the Integrity of Engineered Controls

Detail discussion to be added

2.2.3 Other Site Features

Detail discussion to be added

2.3 Cover Maintenance Activities

Damage to protective covers could result from vandalism, light motor vehicle traffic (boat ramp) and or unauthorized digging. In addition, flooding of Kootenai River or Rainy Creek has the potential to result in surface exposure of LA from significant erosion of the covers in place. Damage to protective covers at the OU1 site can result in exposure to asbestos containing material that would result in unacceptable cancer risk or non-cancer hazard. Corrective action to repair minor or major breaches to the protective covers in these circumstances is the responsibility of the MDEQ. Prior to corrective action, the MDEQ will develop a task-specific Activity Hazard Analysis or separate task specific HASP.

In general, if LA is encountered or suspected while inspecting the protective cover at OU1:

- Take necessary measures to secure the disturbed areas so that the protection of human health is maintained through restriction of access to the area and limit contaminant migration from inadvertent activities.
- Contact the Environmental Resource Specialist (ERS) who will manage any contamination encountered. Section 2.4 further describes the responsibilities of the ERS.
- Take corrective action to repair the protective cover, as further described in the following subsections.

2.3.1 Repair of Minor Breaches to Protective Covers

General wear and tear or erosion of protective covers may result in a minor breach of protective covers. If the protective cover can be repaired without additional excavation of contaminated soil, it is considered a minor breach of the protective cover. This type of breach to a protective cover may or may not result in the exposure of asbestos containing material or debris from below the cover. This determination is to be made by the MDEQ with input from the ERS.

Repair of a minor breach of soil protective covers will follow the general steps described below:

- Obtain clean soil from an offsite borrow source, outside of the City of Libby valley analyzed for asbestos.
- Transport, place, and compact backfill and topsoil.
- Hydroseed disturbed area as necessary.

As shown in Figure 1-4 excavations along at the Kootenai River were restored using rip rap. The disturbed areas were backfilled with common fill, graded, and riprap was placed to prevent erosion of the creek and riverbanks during high floods. As necessary, repairs to minor breaches of rip rap protective covers will follow the general steps described above except that transportation and placement of rip rap will replace the transportation, placement, and compaction of topsoil and hydroseeding.

In the case that an O&M manual is not available to dictate materials and methods for the repair of a damaged protective cover, the materials and methods used for all new repairs will meet the performance standard requirements as specified in the applicable OU1 remedial or removal action work plan used for the original protective cover. In some cases, including the Highway 37 embankment erosion control blankets may be required to prevent erosion until vegetation is established.

2.3.2 Repair of Major Breaches to Protective Covers

A major breach of the protective covers will result in significant exposure to contaminated soil beneath the cover. Additional excavation of contaminated materials would be necessary to secure the disturbed areas so that the protection of human health is maintained and contaminant migration does not occur.

There is always a risk that an act of nature could cause this type of major breach of the protective covers. If the remedy is damaged by some sort of natural disaster, then the MDEQ will be prepared to make the necessary repairs. If the area has been declared a disaster under the Stafford Act, Federal disaster funds may be available.

Exposed contamination, as the result of a major breach, will be excavated and disposed of at an MDEQ-approved facility. Sampling and analysis will be conducted to confirm that contamination did not migrate outside of the breached area.

In the case that an O&M manual is not available to dictate materials and methods for disposal of excavated contaminated soil and repair of damaged protective cover, the materials and methods used for all new repairs will meet the performance standard requirements as specified in the applicable OU1 remedial or removal action work plan used for the original protective cover.

2.3.3 Repair of Breaches to Protective Covers Due to Underground Utility Modifications/Repairs

Detail description to be added

2.4 Future Encounters with Contaminated Soil

If disturbance to the protective covers cause exposure, advice on how to address the encounters with contaminated materials, would be obtained from the ERS. The ERS is a position currently staffed in the City of Libby by EPA which may be transitioned to another government entity when RA across the site is complete. In addition to providing advice and instruction, the ERS will manage any contamination encountered.

ICs such as informational devices, as described in Section 3.4, will be used to inform the public of proper actions to avoid and handle future encounters with contaminated soil.

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Section 3

Monitor Institutional Controls

ICs are non-engineering measures designed to prevent or limit exposure to hazardous substances left in place at the OU1 site. ICs have not been established or implemented at OU1. As presented in the ROD Section 12.3.2, “ICs are considered an integral part of the remedy, so development and implementation of the ICs will be conducted as part of the RA.” (EPA 2010b).

EPA will develop an Institutional Control Implementation and Assurance Plan (ICIAP) to ensure ICs applicable to OU1 are properly documented, implemented and operate effectively during their entire lifespan. In accordance with the interim final guidance, *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Superfund, Brownfields, Federal Facility, UST and RCRA Corrective Action Cleanups*, the ICIAP will identify the objectives, performance goals, existing or anticipated enforcement documents and approaches for enforcement (EPA 2010a).

Once established, the ICs will be evaluated and updated on an annual basis by the MDEQ. The routine and critical evaluation of the ICs will assess:

1. Whether the selected IC instruments remain in place.
2. Whether the ICs are enforced such that they meet the stated objectives and performance goals and provide protection required by the response (EPA 2010a).

The following sections present proposed ICs and maintenance procedures. According to guidance, ICs are more effective -if they are layered, meaning the use of different types of ICs at the same time to enhance the protectiveness of the remedy (EPA 2000). For example, where ICs must be effective for a long period, either proprietary or governmental controls will be considered because they generally run with the land and are enforceable. Also, the implementation of government controls might be considered a beneficial addition to information tools that may be forgotten over the long-term or an enforcement action that would be binding only on certain parties (EPA 2000).

3.1 Proprietary Controls

Proprietary controls are created pursuant to state law to prohibit activities that may compromise the effectiveness of the response action or restrict activities or future resource use that may result in unacceptable risk to human health or the environment (EPA 2010a).

3.1.1 Establish Proprietary Controls

Proprietary controls involve legal instruments placed in the chain of title of the site or property. Proprietary restrictions considered for the remedial action, include an environmental covenant, easement, or deed notice. EPA will work closely with the

MDEQ, the City of Libby, Lincoln County, MDT, and the City and County Board of Health to ensure that the controls selected will be implementable and will achieve the desired results. An example of this type of control is an easement that provides access rights to a property so the MDEQ and EPA may inspect and monitor the cover system. The benefit of these types of controls is that they can be binding on subsequent purchasers of the property (successors in title) and transferable, which may make them more reliable in the long-term than other types of ICs (EPA 2000).

3.1.2 Evaluate and Update Proprietary Controls

Both the administrative/legal components of proprietary controls as well as the physical evidence will be evaluated. One method to evaluate the administrative components of proprietary controls is to perform a title search on the properties within the OU1 area and determine if the land or resource use restrictions are appropriately documented in the chain of title of the property. Proprietary controls can also be evaluated during site inspections through physical evidence of property encroachment or possible violations of land or resource use restrictions.

The MDEQ will work closely with the EPA, the City of Libby, the MDT, the City and County Board of Health or appropriate entity to ensure that updates to controls are implementable and achieve the desired results.

3.2 Governmental Controls

Governmental controls impose restrictions on land use or resource use (EPA 2010a).

3.2.1 Establish Governmental Controls

Local governments have a variety of land use government controls to limit land or resource use including zoning restrictions, ordinances, statutes or building permits (EPA 2000). However, once implemented, local and state entities often use traditional police powers to regulate and enforce the controls. Since this category of ICs is put in place under local jurisdiction, they may be changed or terminated with little notice to MDEQ or EPA, and EPA generally has no authority to enforce such controls (EPA 2000). An example of a government control active on the OU1 site is MDT Encroachment Permits required for intrusive work within the ROW to Highway 37. EPA will work closely with the MDEQ, the City of Libby, MDT, and the City and County Board of Health to pass an ordinance to restrict construction or invasive digging that might disturb or cause exposure to covered residual LA contamination.

3.2.2 Evaluate and Update Governmental Controls

Because land use and ownership changes can occur over a relatively short time, developers and other parties may not be fully aware of the ICs that have been put in place as part of a cleanup. Both the administrative/legal components of government controls as well as the physical evidence will be updated. Government controls will be evaluated during site inspections to identify any changes in land use, including evaluations of the activities conducted within Highway 37 ROW and the MDT Encroachment Permit.

The MDEQ will work closely with the EPA, the City of Libby, the MDT, the City and County Board of Health or appropriate entity to ensure that updates to controls are implementable and achieve the desired results.

3.3 Enforcement and Permit Tools

Discuss possible Enforcement and Permitting Tools.

Enforcement and permit tools are legal tools, such as administrative orders, permits, Federal Facility Agreements (FFAs) and Consent Decrees (CDs), that limit certain site activities or require the performance of specific activities (e.g., to monitor and report on an IC's effectiveness) (EPA 2010a).

3.4 Informational Devices

Informational devices provide information or notification to local communities that residual or contained contamination remains on site (EPA 2010a).

3.4.1 Establish Informational Devices

Discuss utility corridors.

As described in the ROD, EPA anticipates that an important IC at OU1 will involve an agreement with a one-call utility locate service such as U-Dig. U-Dig is a local service that people call at no cost before digging at their property to locate underground utility hazards (e.g., electrical lines). U-Dig would add "known areas of subsurface vermiculite at OU1" to their database of underground utility hazards using information provided by EPA (EPA 2010b).

U-Dig calls and requests for information are currently fielded by ERS personnel. The ERS position is considered an informational device used to convey information to the public and is currently staffed by EPA. The purpose of this position is to provide advice on how to address contamination. In addition to providing advice and instruction, the ERS will manage any contamination encountered. The ERS position may be transitioned to another government entity when RA across the site is complete.

The EPA Libby Asbestos Superfund Site website (<http://www.epa.gov/region8/superfund/libby/>) is also a source for information about the Libby Asbestos Superfund Site (EPA 2011). The EPA currently manages the website, which provides a source for information to the public regarding current activities at the Libby Asbestos Superfund Site. Additional informational devices to be established could include advertisements, handouts, and training classes.

3.4.2 Evaluate and Update Informational Devices

An example of a method to evaluate the effectiveness of informational devices would be to develop a survey for the local community to participate in regarding the residual contamination left onsite. The effectiveness of websites and the U-Dig

services could be evaluated through use of the service. The website will be evaluated and updated on an annual basis to improve accessibility, navigability, design, content, and technical functionality.

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Section 4

Reporting Requirements

The MDEQ and EPA will agree on reporting requirements and those requirements will be incorporated into the Superfund State Contract (SSC). As described in [Section 1.2.3](#), Five-Year Review Reports will be completed by the EPA on a five year cycle with the initial schedule presented in [Table 1-1](#) and in accordance with *Comprehensive Five-Year Review Guidance* (EPA 2001b). The MDEQ will submit reports on O&M activities to EPA on a routine basis and as required by unforeseen events (described below). EPA will review the reports on an ongoing basis.

It is suggested that a tracking system be developed so that the Remedial Project Manager (RPM) would be notified of an impending report as well as the action taken as a result of EPA's review. This is particularly critical given that O&M of the Libby site is expected to be long-term, and RPMs may change over time. Also, the level of activity at the Libby OU1 site during O&M will be much reduced compared to the construction phase.

4.1 Routine Reports

Routine reports summarizing O&M activities will be prepared by MDEQ and submitted to the RPM on an annual basis.

Routine reports will include sections on data collection, summary of sampling results, results from routine inspections, listing of major repairs, breakdown of actual costs for the reporting period, budget for the next reporting period, regular updates of the Site Safety and Health Plan, O&M Manual and as-built drawings, community complaints and responses, and verification of the integrity of ICs.

These reports will assist the EPA and MDEQ in considering the adequacy of O&M, the frequency of repairs, trends in monitoring data, costs at the site, and how these factors relate to determining protectiveness of the remedy.

4.2 Special Reports

Special reports are required as needed due to unforeseen events or conditions. One example of a special report is an incident report. Incident reports are used to document the details of accidents involving site personnel, operating emergencies, and other unusual events such as fires, floods, or weather damage may be required by the O&M HASP. Another example of a special report is a record of modification or amendment to the O&M HASP. When accidents occur on-site, the O&M HASP may need to be updated depending on the type of incident and whether or not it is already covered in the plan. These special reports should be made available to the EPA and other interested parties in a timely manner (EPA 2001a).

Section 5

Cost Estimate

As part of the O&M plan, costs are developed to estimate all the O&M activities as discussed in this report. The O&M cost estimate was primarily developed to provide EPA and MDEQ with a preliminary cost basis for establishing ICs, costs for routine and non-routine remedy maintenance, annual site inspections, and cost for Five-Year Reviews as described in this O&M plan report.

5.1 Purpose and Intended Uses

This O&M cost estimate reflects the annual and periodic costs for implementing the long-term O&M at the OU1 site.

The intended use of the O&M cost estimate is to support EPA and MDEQ in the development and preparation of the annual O&M budget for the OU1 site. The O&M cost estimate is also used to help EPA and MDEQ management understand the costs associated with implementing the long-term O&M at OU1 site and also helps in establishing the SSC, or cooperative agreement (CA).

5.2 Methodology and Organization

The basis for methodology and organization of the O&M cost estimate is the selected remedy cost estimate prepared in 2010 for the OU1 ROD. The selected remedy cost estimate was developed according to *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 2000a).

The O&M cost estimate was prepared by using the same cost summary and cost worksheet templates used for the selected remedy cost estimate with following changes:

- The worksheets from the selected remedy estimate were modified to reflect the scope as presented in the OU1 O&M plan report.
- New worksheets were developed as necessary to reflect the major O&M components.
- The unit costs presented in the selected remedy cost estimate were escalated to the current (2011) dollars to reflect potential increases in cost due to inflation since 2009. Escalation indices from the yearly composite cost index (weighted average) from the U.S. Army Corps of Engineers (USACE) Civil Works Construction Cost Index System (CWCCIS), Engineering Manual (EM) 1110-2-1304, 31 March 2000, Revised as of 30 September 2010 was used.
- Labor rates was also updated using current wage reports from SalaryExpert.com and Davis-Bacon (General Decision Number: MT20100002, 03/12/2010).

- Markup for RD cost was removed from the O&M estimate because RD/RA has already been completed by EPA.
- Markup for contingency was reduced to 10% which includes 5% scope and 5% bid contingencies. The 10% bid contingency reflects the unknown costs associated with implementing the O&M; such as adverse weather conditions, materials costs, or unfavorable market conditions.

The O&M cost estimate consists of cost worksheets, a cost summary, and a present value analysis. The cost worksheets provide the costs for individual O&M components. The cost summary includes annual O&M costs and other periodic costs for the long-term O&M, it also includes contingencies, and professional/technical services costs (excluding RD costs). Present value analysis of the estimated O&M cost was also done. For this a period of 30-years was assumed, although the O&M will be conducted indefinitely throughout the life of the site.

Present value analysis is defined as follows within the guidance:

Present value analysis is a method to evaluate expenditures, either capital or O&M, which occur over different time periods. The single cost figure, referred to as the present value, is the amount needed to be set aside at the initial point in time (base year) to assure that funds will be available in the future as they are needed, assuming certain economic conditions. Discount rate for present value analysis was determined based on the forecasted real interest rate from which the inflation premium has been removed and based on the economic assumptions from the 2011 Federal Budget, a real discount rate of 2.3% (Appendix C of Office of Management and Budget [OMB] Circular A-94, Revised 12/2010) was used.

5.3 Cost Estimates Accuracy and Cost Uncertainty

The O&M cost estimate is developed to be as accurate as the current information allows and is based on the scope presented. The cost estimate is expected to have an accuracy of +50% to -30% of the actual costs. This cost accuracy range is consistent with EPA's Remedial Design/Remedial Action Handbook (EPA 1995) for preliminary development of O&M activities and responsibilities. Currently this cost estimate is an *Opinion of Probable Cost* only, and further refinement of the cost estimate will be done after additional inputs are gained from the stakeholders.

The O&M cost estimate does not include costs associated with specific EPA and/or MDEQ contracting vehicles, like response action contract (RAC). Typical costs include program management costs, general and administrative costs, subcontracting costs and fees.

5.4 O&M Cost Estimate

As stated above, this is a probable cost of O&M, thus the actual cost to the stakeholders (i.e. MDEQ and/or EPA) may be lower depending on whether the State can find cost efficiencies in implementing the O&M at OU1 site. Costs related to

implementation of ICs are excluded from the O&M cost estimate, because it is a remedy component that has to be established prior to O&F determination.

The detailed cost estimate (cost worksheets, cost summary, and present value analysis) is presented in **Appendix A** of this O&M plan report. The following table presents the summary of the O&M cost estimates.

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Table 5-1
Summary of Probable Operations and Maintenance
Cost Incurred by MDEQ

O&M Component	Cost Type	Description	Cost

Note:

Table 5-2
Summary of Probable Operations and Maintenance
Cost Incurred by EPA

O&M Component	Cost Type	Description	Cost

Note:

Section 6

References

Will be updated

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Appendix A

Detailed O&M Cost Estimate

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